MANGANESE

(Data in thousand metric tons, gross weight, unless otherwise specified)

<u>Domestic Production and Use</u>: Manganese ore containing 35% or more manganese was not produced domestically in 2000. Manganese ore was consumed mainly by about 15 firms with plants principally in the Eastern United States and the Midwestern United States. The majority of ore consumption was related to steel production, directly in pig iron manufacture and indirectly through upgrading ore to ferroalloys and metal. Additional quantities of ore were used for such nonmetallurgical purposes as production of dry cell batteries, as an ingredient in plant fertilizers and animal feed, and as a colorant for brick. Manganese ferroalloys were produced at one smelter. Leading identifiable end uses of manganese were in products for construction, machinery, and transportation, which were estimated to be 26%, 13%, and 12%, respectively, of total manganese demand. Most of the rest went to a variety of other iron and steel applications. Value of domestic consumption was estimated from foreign trade data to be about \$460 million.

Salient Statistics—United States:1	<u> 1996</u>	<u> 1997</u>	<u>1998</u>	<u> 1999</u>	2000°
Production, mine ²	_	_		_	_
Imports for consumption:					
Manganese ore	478	355	332	460	445
Ferromanganese	374	304	339	312	330
Silicomanganese ³	323	306	346	301	390
Exports:					
Manganese ore	32	84	8	4	8
Ferromanganese	10	12	14	12	9
Shipments from Government stockpile excesses: ⁴					
Manganese ore	128	115	97	76	61
Ferromanganese	(2)	31	37	35	28
Consumption, reported:5					
Manganese ore ⁶	478	510	499	479	500
Ferromanganese _	326	337	290	281	310
Consumption, apparent, manganese ⁷	776	643	776	719	795
Price, average value, 46% to 48% Mn					
metallurgical ore, dollars per					
mtu cont. Mn, c.i.f. U.S. ports	2.55	2.44	2.40	2.26	2.39
Stocks, producer and consumer, yearend:					
Manganese ore ⁶	319	241	163	172	240
Ferromanganese	27	21	26	40	45
Net import reliance ⁸ as a percent of					
apparent consumption	100	100	100	100	100

Recycling: Scrap recovery specifically for manganese was negligible, but a significant amount was recycled through processing operations as a minor component of ferrous and nonferrous scrap and steel slag.

Import Sources (1996-99): Manganese ore: Gabon, 59%; Australia, 13%; Mexico, 11%; South Africa, 10%; and other, 7%. Ferromanganese: South Africa, 40%; France, 26%; Mexico, 8%; Australia, 7%; and other, 19%. Manganese contained in all manganese imports: South Africa, 29%; Gabon, 17%; Australia, 14%; France, 11%; and other, 29%.

Tariff: Item	Number	Normal Trade Relations 12/31/00
Ore and concentrate	2602.00.0040/60	Free.
Manganese dioxide	2820.10.0000	4.7% ad val.
High-carbon ferromanganese	7202.11.5000	1.5% ad val.
Silicomanganese	7202.30.0000	3.9% ad val.
Metal, unwrought	8111.00.4500	14% ad val.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

<u>Government Stockpile</u>: In addition to the data tabulated, the stockpile contained additional uncommitted inventories of nonstockpile-grade ore, all of which was authorized for disposal, as follows, in tons: natural battery, 16,800, and metallurgical, 331,000.

MANGANESE

Stockpile Status—9-30-009

••	Uncommitted	Committed	Authorized	Disposal plan	Disposals
Material	inventory	inventory	for disposal	FY 2000	FY 2000
Battery:					
Natural ore	90	1	90	27	6
Synthetic dioxide	3	_	3	3	_
Chemical ore	137	4	137	36	7
Metallurgical ore	547	111	547	227	40
Ferromanganese:					
High-carbon	817	43	627	45	45
Electrolytic metal	6	0.1	6	2	0.1

Events, Trends, and Issues: A projected global increase in ore production was being led by increases in output in South Africa and Ukraine. The price of ore increased for the first time in 4 years, and increases in year-average prices were likely for ferroalloys. In the United States, prices for ferroalloys rose or were steady until August but then weakened. Citing low prices, one of the two domestic producers of manganese metal announced that its production would be suspended by yearend. Manganese is an essential element for people, animals, and plants, but it can be harmful in excessive amounts. Thus, manganese can be an industrial poison, but generally is not a hazard.

World Mine Production, Reserves, and Reserve Base (metal content):10

	Mine production		Reserves ¹¹	Reserve base ¹¹
	<u>1999</u>	<u>2000</u> °		
United States	_		_	_
Australia	926	875	26,000	72,000
Brazil	e641	660	18,000	51,000
China	°1,100	1,100	40,000	100,000
Gabon	^e 966	1,000	20,000	160,000
India	°570	580	34,000	50,000
Mexico	169	180	4,000	9,000
South Africa	e1,340	1,500	370,000	4,000,000
Ukraine	°675	900	135,000	520,000
Other countries	<u>°607</u>	<u>655</u>	<u>Small</u>	Small
World total (rounded)	e6,990	7,450	660,000	5,000,000

<u>World Resources</u>: Land-based resources are large but irregularly distributed; those of the United States are very low grade and have potentially high extraction costs. South Africa and the former Soviet Union (FSU) account for more than 80% of the world's identified resources; South Africa accounts for more than 80% of the total exclusive of China and the FSU. Some of the data for reserves and reserve base have been revised from those previously published.

Substitutes: Manganese has no satisfactory substitute in its major applications.

eEstimated.

¹Manganese content typically ranges from 35% to 54% for manganese ore and from 74% to 95% for ferromanganese.

²Excludes insignificant quantities of low-grade manganiferous ore.

³Imports more nearly represent amount consumed than does reported consumption; internal evaluation indicates that reported consumption of silicomanganese is considerably understated.

⁴Net quantity. Data in parentheses denote increases in inventory.

⁵Total manganese consumption cannot be approximated from consumption of manganese ore and ferromanganese because of the use of ore in making manganese ferroalloys and metal.

⁶Exclusive of that at iron and steel plants.

⁷Thousand tons, manganese content; based on estimates of average content for all significant components except imports, for which content is reported.

⁸Defined as imports - exports + adjustments for Government and industry stock changes.

⁹See Appendix B for definitions.

¹⁰Thousand tons, manganese content.

¹¹See Appendix C for definitions.